

REMARKS

Claims 15, 17, 18, 24, and 25 are pending and have been rejected under 35 U.S.C. §103. Claims 15 and 25 have been amended. Support for the amendment to these claims is found in at least paragraph [0009] of the specification. Claims 15, 17, 18, 24, and 25 remain for consideration upon entry of the present Amendment. No new matter has been added.

Claims 15, 17, 18, 24, and 25 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,609,524 to Ferrari (hereinafter “Ferrari ‘524”) in view of U.S. Patent No. 3,677,894 to Ferrari (hereinafter “Ferrari ‘894”) in combination with either U.S. Patent No. 5,437,747 to Adamson et al. (hereinafter “Adamson”) or U.S. Patent No. 5,329,566 to King (hereinafter “King”). The reasons for this rejection are the same as those stated in Section 10 of the Office Action dated November 2, 2007.

Claims 15 and 25 of the present application have been amended as indicated above. In particular, claims 15 and 25 have been amended to explicitly recite the presence of a layer of carbon monoxide provided by the initial fill gas, the layer blocking sites at which hydrogen is adsorbed on the surface of the inner space defined by the cladding tube.

Ferrari ‘524 fails to disclose, teach, or suggest a nuclear fuel rod for a boiling water nuclear reactor having a layer of carbon monoxide provided by an initial fill gas, the layer blocking sites at which hydrogen is adsorbed on the surface of the inner space defined by the cladding tube, as recited in amended claim 15 and in amended claim 25. In the device of Ferrari ‘524, “[t]he addition of the minor amount of gas, about 2-3 percent by volume, to the helium atmosphere provides for formation of an oxide coating on the inner walls of the metallic tube, during operation of the reactor ...” (emphasis added). If the oxide coating is formed during the operation of the reactor, then it necessarily is not present as a layer of carbon monoxide prior to operation of the reactor. Operation of the reactor in the Ferrari ‘524 invention, therefore, provides for the oxide coating. This is in contrast to the present invention as recited in claims 15 and 25 in which a nuclear fuel rod includes a layer of carbon monoxide provided by an initial fill gas to block sites at which hydrogen is adsorbed on the surface of an inner space, as recited in claims 15 and 25. More specifically, the device of Ferrari ‘524 lacks the layer of carbon monoxide, as recited in claims 15 and 25, and instead relies on the operation of the device to form an oxide coating.

Ferrari '894 also fails to disclose, teach, or suggest a nuclear fuel rod for a boiling water nuclear reactor having a layer of carbon monoxide provided by an initial fill gas, the layer blocking sites at which hydrogen is adsorbed on the surface of the inner space defined by the cladding tube, as recited in amended claim 15 and in amended claim 25. Ferrari '894 explicitly discloses a thermally decomposable compound that decomposes in a temperature range of from 200 to 600 degrees F. A nuclear fuel rod having a layer of carbon monoxide that blocks sites at which hydrogen is adsorbed, as recited in claims 15 and 25, is not a fuel element in which a compound must thermally decompose to produce carbon monoxide, as in Ferrari '894. Nothing about the layer of carbon monoxide in the devices of claims 15 and 25 even suggests that a temperature approaches the 200-600 degree F temperature range of Ferrari '894. Also, and as acknowledged by the Examiner, Ferrari '894 does not suggest the carbon monoxide proportion as defined in claims 15 and 25.

Furthermore, neither Adamson nor King disclose, teach, or suggest a nuclear fuel rod for a boiling water nuclear reactor having a layer of carbon monoxide provided by an initial fill gas, the layer blocking sites at which hydrogen is adsorbed on the surface of the inner space defined by the cladding tube, as recited in amended claim 15 and in amended claim 25.

Because none of Ferrari '524, Ferrari '894, Adamson, and King individually disclose, teach, or suggest a nuclear fuel rod for a boiling water nuclear reactor having a layer of carbon monoxide provided by an initial fill gas, the layer blocking sites at which hydrogen is adsorbed on the surface of the inner space defined by the cladding tube, as recited in amended claim 15 and in amended claim 25, none of these references in any combination would disclose, teach, or suggest such a nuclear fuel rod. Therefore, less than all the claim limitations are taught by the cited references individually and in combination. Consequently, because less than all of the claim recitations are taught by the cited references, Applicants' amended claims 15 and 25 are necessarily non-obvious, and Applicants respectfully request that the Examiner withdraw the rejections of claims 15 and 25.

Claims that depend from a claim that is non-obvious are themselves necessarily non-obvious. Because claims 17, 18, and 24 depend from claim 15, and because claim 15 is asserted to be non-obvious for the reasons presented above, claims 17, 18, and 24 are necessarily non-obvious. Applicants, therefore, respectfully submit that claims 17, 18, and 24 are allowable. Accordingly, Applicants respectfully request that the rejections of claims 17, 18, and 24 be withdrawn.

Applicants believe that the foregoing amendments and remarks are fully responsive to the Office Action and that the claims herein are allowable. An early action to that effect is earnestly solicited.

If the Examiner believes that a telephone conference with Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is invited to telephone the undersigned.

Applicants believe that no fees are due with the submission of this Amendment. If any charges are incurred with respect to this Amendment, they may be charged to Deposit Account No. 503342 maintained by Applicants' attorneys.

Respectfully submitted,

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